

REMARKS

Summary of Office Action

Claims 27-56 are pending.

Claims 27-28, 32, 35-36 and 56 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over U.S. Patent 5,824,133 to Tranquilla ("Tranquilla") in view of "Short-Pulse Microwave Treatment of Disseminated Sulfide Ores" to Salsman et al. ("Salsman").

Claim 37 was objected to as being dependent on a rejected base claim, but would otherwise be allowable.

Applicant's Reply

Applicant would like to thank the Examiner for indicating that Claim 37 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Applicant has amended claim 37 as the Examiner suggests and submits that claim 37 is now in condition for allowance.

Applicant has amended claims 27, 28, 33, 37, 39, 42-44, 46, 47, and 49 to clarify the invention and fix typographical errors and submits that no new matter has been added.

Applicant has canceled claims 31 and 50-55 which were directed to a non-elected invention but reserves the right to prosecute these claims in another application.

Applicant submits that as a result of the above-identified amendments, claims 33, 34, and 38-49 are now directed to the same invention as the claims in group I previously elected. Applicant therefore requests consideration of these new claims. Further, Applicant submits that claims 29 and 30 have been withdrawn from consideration but will be allowable if generic claim 27 is allowed.

Applicant submits that claims 32, 34-36, 38, 40, 41, 45, 48, and 56 are previously presented.

Applicant respectfully traverses all rejections of record.

Rejections Under 35 U.S.C. §103

Claims 27-28, 32, 35-36 and 56 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Tranquilla in view of Salsman.

Claim 27 has been amended to clarify the invention and includes, *inter alia*, “the microwaves having a high enough field strength and being applied for a short enough time to cause differential thermal expansion between materials of different phases to cause weakening between phases whilst avoiding causing significant chemical changes to the ore, or at least to the mineral to be extracted.”

Tranquilla is directed to recovery of metal from metal bearing ores by using microwaves to bring about a **metallurgical effect or chemical change**. (*see* col. 1, lines 38-47, Tranquilla). Claim 27, on the other hand, recites that the microwave cause differential thermal expansion between material of different phases causing weakening between phases **while avoiding causing significant chemical changes to the ore or at least the mineral to be extracted**. Therefore, Tranquilla actually teaches away from claim 27 because it specifically causes chemical or mineralogical change such as oxidation, reduction, vaporization or hydration which claim 27 categorically seeks to avoid. (*see* col. 1, lines 38-47, Tranquilla). Therefore, Tranquilla does not disclose or even remotely suggest that the microwaves have a high enough field strength and are applied for a short enough time to cause differential thermal expansion

between materials of different phases to cause weakening between phases whilst avoiding causing significant chemical changes to the ore, or at least to the mineral to be extracted.

Salsman is cited by the Examiner only as discussing microwave pulse lengths (*see* pg. 2, Office Action) and thus does not cure the deficiencies of Tranquilla discussed above with respect to claim 27. Therefore claim 27 is patentable over Tranquilla and Salsman, either alone or in combination.

Claim 32 similarly includes, *inter alia*, “avoid causing substantial chemical change to said ore or rocks.”

Claim 33 similarly includes, *inter alia*, “avoid causing substantial chemical changes to said phase of said multi-phase material that is to be extracted.”

Since claims 32 and 33 contain similar limitations to that discussed above for claim 27, claims 32 and 33 are patentable over Tranquilla and Salsman, either alone or in combination, for at least the same reasons as discussed above with respect to claim 27.


Claims 28, 34-36, 38-49, and 56 all depend from claims 27, 32, and 33 and are thus patentable over Tranquilla and Salsman, either alone or in combination, for at least the same reasons as discussed above with respect to claims 27, 32, and 33.

CONCLUSION

Applicant respectfully submits that this application is now in condition for allowance. Reconsideration and prompt allowance of which are respectfully requested. It is not believed that there is any fee due. However, if any fee is due, or if any overpayment has been made, the Commissioner is authorized to charge any such fee or credit any overpayment, to our Deposit Account No. 02-4377. If there are any remaining issues to be resolved, Applicant respectfully requests that the Examiner kindly contact the undersigned attorney for early resolution.

Respectfully submitted,

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